

Work Order ID 72511

Wednesday, July 27, 2011 1:02:58 PM



Page 1

Item ID: D6015-125

Accept

Revision ID:

Item Name: Crosstube Material

Start Date: 7/26/2011 Start Qty: 60.00

Required Date: 11/30/2011 Req'd Qty: 60.00

Reference:

Approvals: Process Plan: 

Date:

Tooling:

Date:

QC:

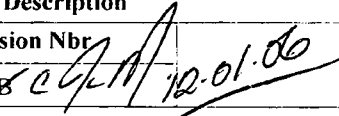



Date:

SPC (Y/N):

Date:

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D6015	Rev B 								
100		0.00							
	PURCHASING								
Purchasing	Memo	0.00							
Purchasing	Issue P/O 14591-								
	A) Extrude and manufacture as per Dwg D6015								
	B) Material: AISI 4130 (AMS 6371) seamless steel tube								
	C) Material certification								
110		0.00							
	Receive & Inspect for Damage & Mat'l Certs								
Packaging	Memo	0.00							
Packaging	Ensure material certification is attached								
120		0.00							
	QC6- Inspect dimensions to drawing								
QC	Memo	0.00							
Quality Control	Ensure Material certification comply to Dwg D6015								

11-07-27

(60)

9/2/01/27 (64)

S. L. L. L. L.

(64)

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 72511

Wednesday, July 27, 2011 1:02:58 PM

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Item ID: D6015-125

Accept

Setup Start

Revision ID:

Stop

Item Name: Crosstube Material

Start Date: 7/26/2011 Start Qty: 60.00

Cust Item ID:

Required Date: 11/30/2011 Req'd Qty: 60.00

Customer:

Reference:

Run Start

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 HandFinish Hand Finishing	Chemical Conversion Coat per QSI005 4.1 <i>Memo</i>	0.00 <i>u/45</i> 0.00							
140 Packaging Packaging	Identify as per dwg & Stock Location: <i>Back</i> <i>Hsu</i> <i>Sizulaf</i> <i>Memo</i>	0.00 0.00							
150 QC Quality Control	QC21- Final Inspection - Work Order Release <i>Memo</i>	0.00 0.00							

OK 12/01/06

#12-01-4
64

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

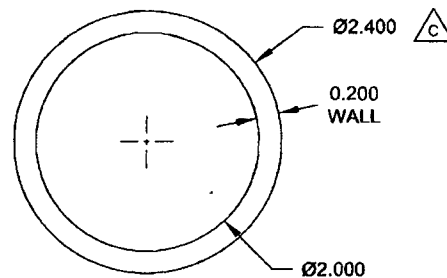
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

SPECIFICATION CONTROL DRAWING

732



NOTES

- 1) D6015-XXX CROSSTUBE
LENGTH

WHERE XXX IS LENGTH IN INCHES
EG. 125" LONG TUBE: D6015-125

- 2) MATERIAL: AISI 4130 (AMS 6371) SEAMLESS STEEL TUBE
2.400 OD x 2.000 ID
ANNEALED

- 3) TOLERANCES ARE PER ASTM A519 AS FOLLOWS:
O.D.: +0.007/-0.000
I.D.: +0.000/-0.007
LENGTH: XXX +0.188/-0.000
STRAIGHTNESS: 0.010" DEVIATION / 12" LENGTH

- 4) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.

RELEASED
2011-01-18

C	2.400 WAS 2.500 (C5-1), ODxID WAS ODxWALL (A8-1)	CP	10.11.23
B	REMOVE "NORMALIZED"	CP	08.06.30
A	NEW ISSUE	CP	06.04.18
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	10.11.23		

DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D6015	REV. C SHEET 1 OF 1
TITLE CROSSTUBE MATERIAL	SCALE NTS

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Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PO REPRINT

Purchase Order ID **PO14591**

Purchase Order Date 7/27/2011

PO Print Date 7/27/2011

Page Number 1 of 2

Order From : VU-FAC001

FACTORY STEEL
14020 OAKLAND AVE.
DETROIT, MI 48203
US

Contact Name

Vendor Phone 313 883 6300

Vendor Fax 313 883 4883

Vendor Account Nbr

Buyer

Requisition Nbr

Tax Resale Nbr 10127-2607

Terms Net 30

Currency USD

FOB Destination-Collect

Ship To : DART AEROSPACE LTD 1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req. Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	D6015-125P	Crosstube Material	11/14/2011 Yes	60.00 Each		\$158.0200	\$9,481.20
		Special Inst:	EXTRUDE: AS PER DWG D6017 REV. A B61380 MATERIAL: AISI 4130 (AMS 6371) SEAMLESS STEEL TUBE SIZE: 2.400 OD X 2.000 ID ANNEALED 125" LONG TOLERANCES ARE PER ASTM A519 AS FOLLOWS: O.D: +0.007/-0.000 I.D.: +0.000/-0.007 LENGTH: 115" +0.188/-0.000 STRAIGHTNESS: 0.010" DEVIATION / 12" LENGTH EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF TUBE. THE OUTSIDE SURFACE MUST BE				

7/27/2011

PACKING LIST

No. 29778 PG 1 OF 1



PL

FACTORY STEEL & METAL SUPPLY 14020 OAKLAND AVENUE DETROIT, MI 48203		PURCHASE ORDER # 14591		BUYER CHANTEL CLAVOIE		SHIP DATE 12/22/2011	
(313)883-6300 PHONE (313)883-4883 FAX		JOB NAME		Tel (613) 632-3336 Fax (613) 632-4443		SHIP VIA ****TRUCK****	
SOLD TO DART AEROSPACE 1270 ABERDEEN STREET HAWKESBURY, ON K6A 1K7		SALES ORDER # 25494		ORDER DATE 07/27/2011		SALES REP MICK HALON	
		SHIP TO DART AEROSPACE 1270 ABERDEEN STREET HAWKESBURY, ON K6A 1K7		SHIP INST TRUCK		RESALE # 59-2958719	
				PRO#		CARRIER TRUCK	
				TERMS NET 30 DAYS		BLIND Y/N N	
						FOB DETROIT	

LINE	PCS	DESCRIPTION	WIDTH	LENGTH	WEIGHT	UNIT PRICE	TOTAL
1	64	PRICE INCLUDES BOXING RD-N.2400200 4130N CD SMLSS RD TUBE 2.400" OD X 200W- Our Tag # Heat # Pcs Total Ft 72446 001M58179 64 666.667 MTRS (CIRCLE) FAX SHIPMENT INVOICE ALL DATE: 12/22/11 INITIAL: MK Bd1 #1 1,240# Bd1 #2 1,752#		125"	3,133.334		

TOTAL WT 3,133 LBS		TOTAL	
RECEIVED BY - SIGNATURE		RECEIVED BY - PRINTED NAME	
		DATE RECEIVED	



SO



MICHIGAN
seamless tube

TEST REPORT

SHIPMENT

5215		MICHIGAN SEAMLESS TUBE				SOUTH LYON, MICHIGAN 48178				001	
ORDER NUMBER	CUSTOMER ORDER NUMBER	DATE	OFC	COM	DIWI	NET SLS	GR SLS	ACCOUNT NUMBER	US	PAGE	
050818	1556	07/28/11	22	00	16	16	01	02598001FCO	2ME	1	

S O D T O	FACTORY STEEL & METAL SUPPLY 14020 OAKLAND DETROIT MI USA 48203	S H I P T O	FACTORY STEEL & METAL SUPPLY 14020 OAKLAND AVENUE DETROIT MI 48203	SN 2 TR 3 INV 3
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OPEN TOP/FULLY TARPED/FOB SOUTH LYON MI				PPD TRUCK	
ANALYSIS	SHAPE	PRODUCT	PC	ANNEAL	REQUESTED
4130	ROUND	COLD DRAWN		PER SPEC	12/16/11
SPECIFICATION		CMSY	DESCRIPTION		PROMISE
SEAMLESS		AMS-6371/A519	CD ALLOY AIRCRAFT		12/16/11

SPECIAL INSTRUCTIONS
 OIL DFAR COMP.MARK/CERT A519-96,MILT-6736BN NOTE-2,AMS-6360L,
 AMS-6371J,AMS-T-6736AN,4130H.CERT TO AMS-2301J.DECARB LEVELS TO
 AMS-6371.PROD FROM 1-HT.80M PSI MIN YLD/AIM 90 PSI.STRT/SURFACE
 CRITICAL.NO MARKS.CIRCUMFERENTIAL GRIND MARKS UNACCEPTABLE.KERF
 +.188"/-0.QTY VAR +10%/-0.MARK TO INCL GRADE & ALL SPECS.BOXED.

ITEM	QUANTITY	O.D.	I.D.	WALL	LENGTH	WT/FT	WEIGHT	
		2.400	2.000			4.699		10:19:55
		+.0070	+.0000					12/15/11
		-.0000	-.0070					

ITM	BALE	--BALE--				ITM	PART
NUM	NUM	PCS	FTG	HEAT NO.	LENGTH	STATUS	NUMBER
1	1 2	32	333	001M58179	CUT 10' 5.000"	COM	
1	2 2	32	333	001M58179	CUT 10' 5.000"	COM	

Signature

HEAT NO.	C	Mn	P	S	Si	Ni	Cr	Mo	Cu	Al	REMARKS
001M58179	.290	.560	.012	.012	.220	.120	1.020	.170	.270	.020	EF GERDAU

HEAT NO.	ULT. STR. PSI	YIELD. PSI	% ELONG	HARDNESS	HYDRO TEST PSI	ULTRA SONIC %	EDDY CURRENT	EXPANSION
001M58179	107,488	90,000	18.7	HBW 226-226			OK	
					BEND	FLATTEN	FLARE	REV. FLATTEN
								FLANGE

DECARB OK GRAIN SIZE 8
 FREQ 0.00 SEV 0.00
 MACROS S1 R1 C1
 J1 J2 J3 J4 J5 J6 J7 J8 J9 J10
 52 50 48 46 41 38 36 34 31 31
 MELTED & MANUFACTURED IN USA

We hereby certify that the reported data are correct according to Michigan Seamless Tube tests and those of its suppliers.